Melanochlamys handrecki sp. nov.: an addition to the opisthobranch fauna (Mollusca: Gastropoda) of south-eastern Australia

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Abstract

A new infaunal species *Melanochlamys handrecki* (Aglajidae) is described from coastal embayments of central Victoria and western Tasmania. The new species is compared with its local congener *Melanochlamys queritor* and the New Zealand *Melanochlamys lorrainae*. (*The Victorian Naturalist* **127** (6), 2010, 231–235)

Keywords: Aglajidae, new species, south-eastern Australia, lower intertidal

Species of the genus *Melanochlamys* Cheeseman, 1881, like all members of the bubble-shell family Aglajidae, have a reduced internal shell hidden away in the posterior or posterior-dorsal part of the body. The shell is fragile, white, and in shape closely resembles the top or posterior quarter of the common temperate Australasian bubble-shell *Bulla quoyii*. With few exceptions, species of the family lack radular teeth in the pharynx; instead of teeth on a ribbon acting as a 'pick-up and conveyor belt' for the passage of food to the stomach, aglajids suck in live prey and 'pressure pass' it to the stomach where it is digested. Aglajid prey includes acoel, polyclad and polychaete worms, shelled opisthobranchs, other species of the family Aglajidae, even their own species, and nemerteans which are ingested just as a human would suck in a length of spaghetti (Rudman, 1972b).

Gosliner (1980) includes eight species in *Melanochlamys*. Since then three species have been synonymised with others (Burn, 1974; Chaban and Martynov, in Kantor and Sysoev 2006) and the status of some remains doubtful. One species is common in south-eastern Australian low intertidal and shallow subtidal waters. *Melanochlamys queritor* (Burn 1957) (Fig. 1), described in this journal a little over 50 years ago, ranges from southern New South Wales to southern Western Australia including Tasmania (Burn 1989). A rare and presently

Fig. 1. *Melanochlamys queritor* - dorsal view of live specimen from Eagle's Nest, Inverloch.

undescribed species of the genus is listed from the Bass Strait area (Burn 2006). A third, newly found, species is described herein.

All material has been deposited in Museum Victoria, Melbourne.

Melanochlamys handrecki sp. nov. (Figs 2–4)

Material

Shallow Inlet, Waratah Bay, South Gippsland, Victoria, 38°51'S, 146°09'E, collected by members of the Marine Research Group, FNCV: 18 March 2009, 1 specimen, 15 mm long, alive (dissected Paratype MV F169259); 7 March 2001, 5 specimens, 4, 6, 6, 7, 14 mm long alive (14 mm specimen Holotype MV F169257, four smaller specimens Paratypes MV F169258).

Habitat

Found at low tide in areas of clean sand surrounding small *Zostera* beds. Specimens burrow just below the sand surface and are not visible except for the track they leave behind. The sand areas are densely populated with polychaete worms, which form semi-consolidated sand tubes that project one or two millimetres above the surface.

Description

Live animal to 15 mm long, almost 6 mm at its widest, and about 4 mm high. Body elongate oval, a little wider towards the posterior, and much depressed. Head shield half length of the body, wider and shallowly arcuate in front, narrowly truncate behind, shallowly grooved along mid-line. Anterior edge of head shield thickened and grooved. Visceral hump narrower in front where it emerges from beneath the tightly adpressed posterior flap of the head shield, becoming wider as it frees from the parapodia, and terminating in a pair of short rounded lobes. Lower lateral edges of visceral hump overhang indented groove along body wall. Thin margin of parapodia very closely adpressed to body sides at about two-thirds body height. In section, parapodia narrowly curved out from body, together with the indented groove forming a wide siphonal canal along each side. Foot broad, a little wider in front, rounded behind. Eyes not visible dorsally or laterally. On each side of mouth is a small cream quadrangular pad from which short hyaline sensory bristles intermittently project. Posterior to each pad, a large brown cuticularised patch (Hancock's organ).

Pharynx approximately one quarter of body length, ovoid, muscular. Penial sheath with an internal muscular flap, with a short free posterior penial papilla, and a single prostrate gland. Shell with broad outer lip, the upper edge projecting as a sharp point that is housed within the right posterior lobe of the visceral hump; inner whorls broadly conical and very fragile.

Fig 2. *Melanochlamys handrecki* – dorsal view of live Paratype, MV F169259.

Fig 3. *Melanochlamys handrecki* – left lateral view of live Paratype. MV F169259.

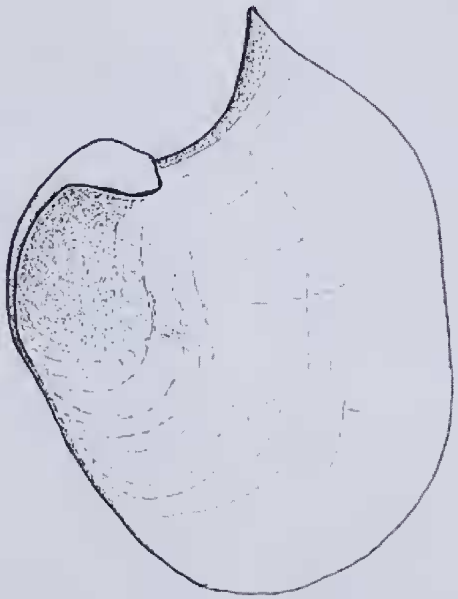

Fig 4. *Melanochlamys handrecki* – internal view of shell of dissected Paratype, approximately 3.5 x 2.5 mm.

Dorsal surface of head shield and visceral hump almost black. Orangeish viscera visible within left side of visceral hump. Parapodia light grey dorsally, becoming much paler ventrally, to dull white on the sole. Small specimens are paler dorsally.

Discussion

Melanochlamys handrecki is readily separated from its local congeners by the broad depressed body, the closely adpressed, narrowly curved parapodia that do not reach high up the body sides, the broader outer part of the shell with projecting point, the large brown Hancock's

organs, and the grooved anterior edge of the head shield. In *Melanochlamys queritor*, the body is cylindrical, the parapodia rise higher and are held closer to the body sides, the shell is more posterior within the visceral hump and is smaller and more tightly coiled, the Hancock's organs are not colour differentiated, and the eyes are visible anterior-laterally in the groove separating head shield from foot. *Melanochlamys* sp. (Burn, 2006), known only from one or two specimens, has a cylindrical body like that of *Melanochlamys queritor*, but differs from that species and *Melanochlamys handrecki* by the presence of a cuticularised stylet arming the penial tip, and an opaque white body sparsely spotted with brown. (Coleman, 2001, p 119, lower right hand figure).

The six live specimens of *Melanochlamys handrecki* were very uniform in colouration, except that the smallest specimens were not as dark grey on the dorsal surfaces. *Melanochlamys queritor* varies considerably in colour. Typically it is black with a bluish sheen from the minute cilia that cover the body, with lighter cream anterior corners and posterior edge of the head shield, but grey, brown and almost cream animals, plain or mottled, have been observed over the years. Brown mottled specimens were described as *Melanochlamys henri* Burn, 1969 but were later synonymised with *Melanochlamys queritor* (Burn 1974).

Details of the penial sheath, size of the pharynx and shape of the shell of *Melanochlamys lorrainae* (Rudman 1968) from northern New Zealand are similar to these features in *Melanochlamys handrecki.* Initially described from a white animal (Rudman 1968), additional specimens range from white to mottled grey with paler anterior and posterior ends (Rudman 1972a). Specimens of *Melanochlamys lorrainae* figured on the 'Sea Slug Forum' (Rudman 2010) are creamy white with sparse grey mottling confined to the median line of the head shield, and all over the sole and parapodia. One specimen shown has very dark grey terminal lobes of the visceral hump. *Melanochlamys lorrainae* is separated from *Melanochlamys handrecki* by its more cylindrical body, and much paler colouration.

Supplementary Notes

Subsequent to the completion of this paper, a larger and differently coloured specimen of *Melanochlamys handrecki* was submitted to the writer for examination. The following observations were made of the specimen, which was maintained alive for 11 days in a large flat bowl with sand from its habitat at one end.

The specimen was found by Trevor McMurrich at the end of a sand track in 60 cm water depth at Curlewis, Outer Corio Bay, Port Phillip Bay (38°10'S, 144°31'E) on 29 July 2010. Several additional animals were seen at the same time, including an apparently mating pair. All were much the same size, the collected specimen measuring 30 mm in length and 11 mm in breadth. All were glossy black dorsally, making the margins of the posterior flap of the head shield and of the parapodia very difficult to distinguish. The anterior corners of the head shield and the sole of the foot were a more smoky black colour, and the inner surface of the parapodia was pale blue-grey. The sole of the foot of the collected specimen was demarcated from the parapodia along each side by a narrow shallow muscular groove, otherwise it matched exactly the description above, even to the presence of short hyaline sensory bristles each side of the mouth.

Melanochlamys handrecki creates a mucous tube to protect its body as it burrows through the sandy substrate approximately 3 mm below the surface. It is only rarely visible from above. The mucous tube collapses immediately behind the moving animal, resulting in a distinctive shallow groove, 11–12 mm wide, narrowly deeper in the mid-line and margined each side by a 2–3 mm high ridge. Five days after collection, the specimen laid a small, soft spherical hyaline egg-mass 13 mm in diameter, anchored by a very short stout holdfast to a mucous-bound mass of sand grains buried in the sediment surface. Numerous very small but well spaced oval egg capsules, 440 x 320 µm in size, each containing a single creamy white egg, measuring 380 x 220 µm, were clustered within an approximately 9 mm diameter sphere within the egg-mass. This egg-mass is very similar to

that of *Melanochlamys cylindrica* from New Zealand, but in that species the eggs appear to fill the whole of the egg-mass and the holdfast is a long slender thread (Rudman 1972a).

Melanochlamys handrecki has also been found in Macquarie Harbour on the west coast of Tasmania. Nine small preserved specimens, 2–5 mm in length, are present amongst Museum Victoria material sorted from three bottom samples located within the Harbour, taken during a survey carried out in August – September 1995. The median groove is well marked on the head shield in all specimens, which though now uniformly decoloured still show signs of brownish pigmentation of the Hancock's organs. Unfortunately, the shell has decalcified within each specimen.

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One Hundred and One Years Ago

THE TASMANIAN NATURALIST.—The October issue of this journal contains an excellent article, entitled " Guide to the Mollusca of Tasmania, adapted for Young Students," by Mr. W. L. May, which has the additional advantage of being illustrated by drawings of thirty-three species of Tasmanian shells. As the conchology of Victoria and Tasmania is very similar, the article should be useful to beginners here. Copies of the journal can be obtained from the hon. sec. Tasmanian Field Naturalists' Club, Hobart, at a cost of sevenpence (including postage).

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